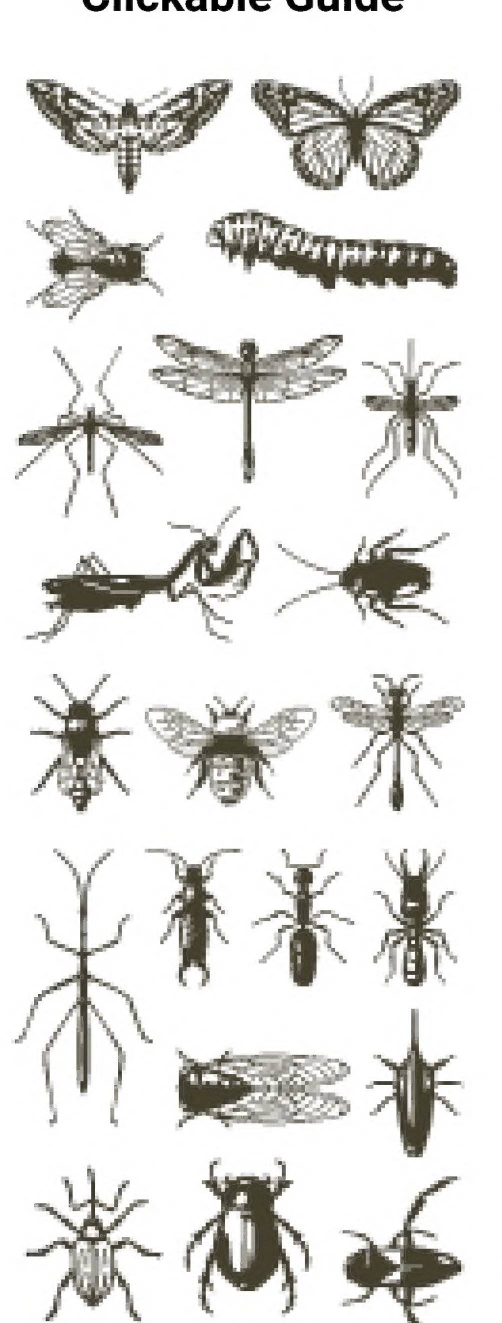
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Calendar

Upcoming Events

Information, insects and people from the 2019 BugGuide Gathering in Louisiana, July 25-27

Discussion, insects and people from the 2018 gathering in Virginia, July 27-29

Photos of insects and people from the 2015 gathering in Wisconsin, July 10-12

Photos of insects and people from the 2014 gathering in Virginia, June 4-7.

Photos of insects and people from the 2013 gathering in Arizona, July 25-28

Photos of insects and people from the 2012

How to Start a Proper Insect Collection

Before starting an insect collection, one should know how to properly capture, kill, mount, and label the insect. Not only does it give the collector much enjoyment owning an insect collection, but also one may learn a lot from studying the insects in his collection. There are many new species that are discovered by collecting, since it is hard to identify a specimen just by looking at it. There are many techniques used to collect and preserve insects, I will try to fit most of them into this article. If you do not wish to own an insect collection, but still would like to learn about the diverse insect world, taking photographs of live insects may be the better choice for you.

Recommended Collecting Tools and Techniques:

 Funnel net (Butterfly net)--The most common and useful tool, which can be easily made or purchased inexpensively at many stores. A diagram of a butterfly net can be seen here.

 A sweep net—Similar to a butterfly net except it has a tougher cloth in place of netting. It's used to sweep through weeds without getting torn.

 Aquatic net—Used to collect insects that live in the water.

 The aspirator—Used to draw small insects into a small glass or clear plastic bottle. The aspirator is simply a small bottle with two hoses inserted through the stopper in the top. When air is drawn out of the bottle with your mouth through one of the hoses, the insect is drawn in through the other hose into the bottle. A diagram of an aspirator can be seen here.

 Pitfall trap—Buried flush with surface of soil and the insect will fall into trap and will not be able to escape. The trap may be used with or without bait. Some baits include fermented fruits, carrion (meat), dung, yeast, fungus, and many household foods such as dog food and cereal. A diagram of a pitfall trap can be seen here.

 Light traps—Used at night, most effectively used to attract moths but may attract other insects as well. Some lights commonly used to attract insects are blacklights, mercury-vapor, and ultraviolet. The easiest kind trap to make is simply a sheet strung between two poles or trees with one of the lights listed above reflecting upon it.

Butterflies are captured easily while resting, as they are much harder to catch while in flight. Moths are most commonly collected during night at a light trap. If you do not have a light trap, moths can be attracted to incandescent lights, such as your porch light. Specimens of *Diptera* (flies) are mostly obtained with the butterfly net, while in flight or resting. *Odanata* (dragonflies and damselflies) are swift and live around the water. These are caught while in flight or resting with a butterfly net. There are many techniques used to collect *Coleoptera* (beetles). Pitfall traps are one of the best ways to capture beetles, but they can be obtained by using a sweep net through thick weeds, swishing an aquatic net through a creek or pond, attracted to one of the light traps mentioned above, or just by netting them with a butterfly net. *Orthoptera* (grasshoppers, crickets, and katydids) can be collected with a sweep net or butterfly net. *Hymenoptera* (ants, bees, wasps, and sawflies) are mostly captured by using a butterfly net. *Himiptera* (true bugs, cicadas, and hoppers) are easily caught with a sweep net or butterfly net.

Of course, using almost any collecting method will yield some insects, but the more collecting techniques you try the more diverse collection you will achieve.

Killing Methods:

The main method of killing insect specimens is the fumigation method. For the fumigation method you use a jar with a tightly fitted lid that has plaster or sawdust in the bottom, which is soaked with a chemical such as, but not limited to, ethyl acetate, acetone (nail polish remover), sodium cyanide*, or potassium cyanide*. Insert a piece of cardboard with holes about one inch off the surface of the fumigant (this will keep the liquid fumigant away from your specimens). When an insect is placed in the jar, the fumigant vapors will rise to the top section of the jar and kill the insect. A diagram of a fumigation jar can be seen here.

Alcohol is the best killing agent for smaller hard-bodied insects (ex. Beetles, *Coleoptera*). Simply place the insect to be killed in a container of isopropyl (rubbing) or ethyl alcohol. This is the quickest and simplest method of killing but it cannot be used on members of *Lepidoptera*, since it will wash away all of their scales.

The last killing method I shall mention is the freezing method. This is my favorite method, since there are

gathering in Alabama

Photos of insects and people from the 2011 gathering in Iowa

no chemicals used. Just put your insects in a bag or jar and freeze them. Keep in mind, if you use a glass jar, condensation will form, possibly harming specimens with scales.

If you want to reposition or change a pin in a specimen you will need to moisturize it. Take a jar and place a few cottonballs in the bottom. Saturate with water or relaxing fluid available at most biological supply companies. Place your specimen in the jar and after about twenty-four hours, it should be movable. I have developed a quicker method that seems to work very well. It can be seen here. Hard-bodied insects may be relaxed by soaking in alcohol.

Mounting Insects:

Pinning is used for medium to large insects. Entomological pins can be purchased at most biological supply companies. Entomological pins range in size from 000 to 7, with 7 being the largest. Size 2 or 3 are most commonly used. Common pins are made of lacquered, tempered spring steel and are approximately 3.5 cm in length and range in price from about two to five cents each. For about five to seven cents, insect pins are made of stainless steel, which will not rust. Most of the time the pin is inserted in the center of the thorax, but with beetles, the pin is inserted in the middle of the right elytron (wing sheath). A diagram of mounting positions can be seen here. There are many ways to mount insects, I have shown a few in my diagram. Spreading boards are used for *Lepidoptera* and insects with large wings. A diagram of a spreading board can be seen here. Foam of a thickness of at least 1-inch thick can be used for all other insects. Once positioned the way you desire, let your specimens stand undisturbed for about 3 days to dry. After the specimens are dry, they may be removed from the foam of spreading board and placed in a storage box (see “storing your collection” below).

For insects too small to pin, points are used. Points are simply slender triangles of thick paper to which an insect is glued to the thin end and a pin is inserted through the wide end. Different types of glue may be used, but I mainly use the common white glue. An alternative to mounting small insects on points is the double mount. This can be used for most insects, especially micro *Lepidoptera*. A very small Minuten pin should be inserted in the specimen, which is then inserted in a small block of cork. A standard insect pin should then be inserted in the opposite end of the cork block. A diagram showing how to mount small insects can be seen here.

Soft bodied insects and arachnids may be stored in vials filled with alcohol. A label should be inserted in the vial, written with alcohol proof ink (see labeling instructions below for what should be printed on the labels). If you are preserving insect larva, you may need to insert specimens in boiling water. If this is not done before storing in alcohol, specimens may blacken.

Labeling:

Every specimen in your collection should be properly labeled. Specimens lacking proper collection data do not have much scientific value. Labels may be hand-written with alcohol proof ink, such as India ink or printed with a laser printer. Printed labels are much easier to read than hand written labels. I have found that inkjet printers work fine as long as the ink is not alcohol soluble and the printer is able to print small enough. A font size of 3 or 4 should be used for printed labels. Labels should be positioned parallel with the specimens body. The first label to be put on the pin should contain country, state or province, county or parish, nearest town, date of collection, and collector’s name. Dates may be written several ways, such as, 20 VI 1943, VI 20 1943, or 20-JUN-1943. Dates should not be written as 6/20/1943 or 20/6/1943. The second label should contain habitat and method of collection. If the specimen has been identified, a third label should be used containing this information, (species name, sex of the specimen, etc.). In order to position the labels of equal height on all of your specimens, a pinning block is used. A pinning block is simply a block of wood containing three holes. The first step is used to position the insect’s body at the proper height on the pin. The second and third steps are used for positioning the labels. The third label, if used, must be positioned by hand, since there are no pinning blocks with four steps on the market today. A diagram of a pinning block can be seen here.

Storing Your Collection:

Your collection should be stored in wooden storage boxes or cabinets with trays. Boxes and trays are lined with cork or foam. Wooden cigar boxes may also be used in which to store your collection. Your collection must be sealed tightly with a fumigant in order to keep pests from destroying it. A fumigant such as naphthalene (mothballs) or paradichlorobenzene* will deter most pests, but your collection should be checked monthly for damage. If your collection is not properly cared for, it will be destroyed by pests and all the time and money put into it will be wasted. Here are two photos of a collection someone neglected:




If you lose interest in your collection, donate it to a museum so it can be preserved for others to learn from for many decades.

Entomologist supply houses carry a wide range of items nessecary to the insect collector. The following

links are just a few of these.

BioQuip
Austerlitz Insect Pins, Discount Insect Pins
Ward's Natural Science

* All chemicals mentioned in this article should be handled with care. Follow all warning labels on these products. Avoid prolonged exposure and skin contact as much as possible.

NOTE: I have received permission from Troy to post this article on Bugguide.

login or register to post comments · previous forum topic · next forum topic
Contributed by Matthew Roth on 9 November, 2005 - 3:08pm
Last updated 21 April, 2006 - 3:53pm

Other preservation options?

I recently found some dead longhorn beetles, cicadas, and a carpenter bee. Is it possible for me to dry them out and encase them in resin? I did this recently for a spiny lobster shed, but do not know if that will ruin my bugs or if there's a higher risk for mites and such destroying the bodies since they are not hollowed out

… taffycat, 19 July, 2019 - 4:37pm login or register to post comments

Other pinning options?

Hi friends, I recently got myself a carpenter bee! I made a frame for it out of 6mm MDF but I'm nervous to use pins - it likely won't go through the frame back and I'm worried the specimen will be damaged. Could I use some type of glue instead? I'd really hate to damage my little bee friend

… Ghostygirl, 7 January, 2019 - 9:08am login or register to post comments

Difficult storage environment

I'd like to keep an insect collection, but I have a problem that I fear may be insurmountable, but I thought I'd ask for advice just in case someone has a creative idea I had missed.
My house doesn't have air conditioning. I live in Michigan so summers can get pretty hot and humid and keeping windows closed just isn't an option, which means it gets humid in my house, plus plenty of bugs find their way in. I had a few specimens just sitting in a closet but they were destroyed by mold so I'm worried there's no way I could keep a collection dry and pest-free enough during summer months.

Just overloading it with mothballs wouldn't work, because my apartment is small and I can't stand the smell of naphthalene. Anything expensive isn't an option for me so I'm looking for a cheep way I could preserve a future collection and keep it safe from the heat, humidity, and bugs. Does anyone have any creative ideas? Or should I just stick with enjoying the living bugs I find outside? :)

… Organic Torus, 22 September, 2018 - 12:29pm login or register to post comments

fumigation???

Your only choice is some form of fumigation, but you don't have to smell it. If it is in a case, that should hold the fumes.

If it is not, it can be enclosed in a sealed plastic box, or a large plastic bag. Google "vacuum seal bag". Some are made to hold cloths to attach a vacuum to and reduce the size of the stored stuff. Haven't tried this, but suspect it might work.

Fumigant: you might try "Hot Shot No-Pest Strip" which will last for at least 4 months. I use this exclusively now. I think the odor will be kept to minimal with the plastic bag or box. I use pest strips every night in a room in my home and close it up in a sealed container during the day and have no problems with odor.

If you don't want to try this, please donate the bugs to a university because each bug caught is a record of what bugs used to be in a location at a specific date which might be useful in the future for conservation, etc.

… Glen Forister, 7 January, 2019 - 3:21pm login or register to post comments

Upper Midwest insect collections not usually affected by mold

in my experience. I've seen several private collections held in Wisconsin - none showing signs of mold. I suppose if air conditioning is never used, old specimens in northern collections could eventually get hit by the dreaded fluffy white mold. The worst place to store specimens is in basement. The biggest concern for any collection is that tiny destructive dermestid larvae are able to sneak into insect boxes that are not tightly sealed.

… Peter W. Messer, 22 September, 2018 - 5:27pm login or register to post comments

Doing something wrong?

Thanks for the article! I found it very helpful.

I'm very new to collecting and I'm using acetone in a sealed glass jar. The insects seem to darken and lose color, I call it "burning".
Just yesterday, I prized catching a large black widow and when I came back to the jar, her abdomen had leaked and deflated. The specimen was ruined... and she was perfect!

What can I do to avoid the insects getting burnt, and what happened to her butt?

… Summbuddy, 4 September, 2017 - 3:12pm login or register to post comments

freezing is usually the best method in my experience

Throwing a bug in the freezer preserves them very well and I've never had any problems. Spiders should be placed directly in ethanol (70-95%) otherwise they will start disintegrating as you describe

… metrioptera, 5 September, 2017 - 8:17am login or register to post comments

I have some vials with etoh

but they are only about 3/4 full. Should I be concerned with this empty air space or is that fine? Will it churn up the specimens if I try and mail them?

… James Bailey, 2 May, 2017 - 7:20pm login or register to post comments

Depends

Generally you should try to have as little air as possible to avoid damage from the movement of the air bubble. However, if the specimens are fairly sturdy, it may not be an issue.

… Brad Barnd, 28 May, 2017 - 4:03pm login or register to post comments

Moth specimen wings are beginning to droop?

Hello all,

I am a novice insect collector. Basically I only collect specimens that I find already dead, and usually soften them up in a relaxing chamber and then position them.

I have a fair number of moths in my collection, and lately I'm finding that on a few of them, their wings are beginning to droop. When I first placed them in my collection, they were stiff and spread out. My other specimens seem just fine - it's only some of the smaller species that this is happening to.

Could it be that where I'm storing them is too moist? Is there an easy way to fix this? Thank you!

… Lindsey Mason, 6 October, 2016 - 10:18am login or register to post comments

droop wings

Hello,
That has happened to me too, and the cause was excess of humidity. You have to put the butterflies in the wings extender board again, position the wings correctly flat them with stripes of paper, etc and let them dry for at least a week before putting them back in your display box.

Let us all know how it went.
Best wishes,
Pedro

… Pedro, 29 August, 2019 - 8:12pm login or register to post comments

a couple of collecting references

Very detailed and useful. I didn't see them mentioned here.

(1) and (2)

… Brad Barnd, 16 May, 2016 - 7:50pm login or register to post comments

killing and preserving moths

I have a problem that I've only ever seen people touch on very briefly. How do you kill small moths without completely destroying their wing? large moths can easily be put in ziploxk bags and frozen, but microleps are impossible. Basically you can't just put them in killing jars because them flapping their wings against the jar destroys them in seconds.they can't come into contact with solution because again, destroys them in seconds. Freezing also hardly works because of condensation destroying the wings. I've looked on a dozen sites and they all skip killing as if it's common knowledge then go into paragraphs on how to pin. Please can someone give me a straightforward answer on this? I always see that field pinning works but surely moths aren't pinned alive in the field? and how do you hold them to pin without destroying the wings? I'm confused as to why the killing of delicate moths is never elaborated on. I know how to pin and spread I just need to know how to kill without destroting wings. Thank you.

… BasilConlin, 28 May, 2015 - 9:11am login or register to post comments

I'm not an expert by any means

But check out this paper: http://www.bio-nica.info/biblioteca/Landry1994a.pdf

They discuss several techniques.

… Brad Barnd, 3 June, 2015 - 12:16am login or register to post comments

regarding here

all the links that something can be seen here are no longer active-are there any other available links. I'm mostly interested in learning the double mounting method for micro moths.

Thanks
Lin

… LinRandolph, 19 July, 2014 - 3:40pm login or register to post comments

Video

There is a demonstration video here (the link was live as of January 2015). If the method in this video works perfectly for you, great. If not, don't hesitate to experiment and modify until you find what works best for you. There probably are as many different variations as there are people who spread microleps.

… Terry Harrison, 7 January, 2015 - 12:24am login or register to post comments

Thanks Terry

Very informative video. I've always wondered how people manage to spread those tiny moths!

… Brad Barnd, 7 January, 2015 - 9:35pm login or register to post comments

Pinning insects stored in alcohol

Hello, I am a new insect collector and your post is very helpful. I am wondering if you have suggestions regarding pinning insects previously stored in alcohol. For example, do I need to wash it with something before letting it dry/relax and pinning it?

Thank you.

… PSYL, 16 January, 2012 - 11:56am login or register to post comments

PINNING INSECTS STORED IN ALCOHOL

I have always used propyl alcohol (propanol) for collecting and storing insects, in glass vials of several sizes. I leave tiger beetles in the alcohol for a year or more (i.e., for degreasing), changing the alcohol once or twice, before it becomes too discolored, which helps maintain the white maculations. However, alcohol solutions above 80% may require relaxing of the specimens in a humidity box for several days before mounting, and may leave specimens so brittle that they break during the act of pinning. A colleague suggested adding about one part vinegar to 12 parts of 91% alcohol (available in most pharmacies). This solution still works well as a killing agent and preservative (i.e., 75%), and leaves the specimen ready for immediate mounting, without causing brittleness. Prior to a collecting trip, I prepare about 40 vials (with polyseal screw caps from Bio-Quip) with the alcohol/vinegar solution for use in day collecting at multiple sites, and have a large bottle of the solution ready to refill jars during night collecting. Before retiring, I empty the soiled solution through a sieve, rinse the specimens under a tap, and set the batch of specimens on a paper towel to dry overnight. The following morning, I paper the specimens, label the cardboard backs, prepare field notes, and attempt to dry the material by spreading out the cardboard mounts each night. Specimens preserved in this manner can be maintained (in ziplock bags after thorough drying) for many years, until one has time to mount them.

… Robert E. Wrigley, 14 November, 2014 - 10:17pm login or register to post comments

Interesting! My questions/comments about your method:

I like to use cheap & readily obtainable products. So I hope you meant isopropyl alcohol when you said "propyl alcohol (propanol)" which is technically different (aka propionaldehyde = 1-propranol). I wouldn't know where there's a cheap/easy source for that product. Like you, I'm bothered by greasy non-white maculations on tiger beetles. There's got to be a quicker way than one year in alcohol. How about something like a few days in acetone or stronger solvent Xylol available at hardware stores? Rather than "several days in a humidity box", I find a quick & safe method for pinning dry specimens is to first drop them into near-boiling water for 15 minutes. Finally, I didn't understand what "paper the specimens" meant.

… Peter W. Messer, 15 November, 2014 - 6:49am login or register to post comments

Oops! Thanks for clarifying.

My speed reading http://en.wikipedia.org/wiki/Propionaldehyde missed the important one-vowel difference between chemicals "propanal" and "propanol". The latter spelling is the relevant one.

… Peter W. Messer, 15 November, 2014 - 9:49am login or register to post comments

nitpicking

Sorry to be anal but as a chemist, your parenthetical bothered me.
Propionaldehyde is something different altogether.

1-propanol could be called n-propyl alcohol and available in labs.

2-propanol is called isopropyl alcohol or isopropanol, the common solvent readily available in drugstores.
propionaldehyde might be called 1-propanal and is not an alcohol (it is an aldehyde) and has no -OH group like all alcohols must. You could probably find it in a lab but probably not in a drugstore.

… Rick Buss, 15 November, 2014 - 8:51am login or register to post comments

Insects in alcohol

Usually you do not need to 'wash' alcohol-preserved specimens. Sometimes I will do a quick wash in clean alcohol if the storage alcohol has become dirty/discolored, but I don't think its really necessary.

There are two main considerations I have found with alcohol specimens:
*Certain insects will lose their colors (especially grasshoppers/katydids and some hemiptera).

*Care needs to be taken with flies/wasps when drying so that the wings are not wrinkled/distorted. They can be carefully spread out using a pin immediately after removal from alcohol. Sometimes shriveling of softer bodied insects can be problematic (see 'acetone technique' below for one option). More robust insects will not be a problem (most beetles, true bugs, etc.).

… Brad Barnd, 16 January, 2012 - 2:25pm login or register to post comments

See here:

http://bugguide.net/node/view/342619

… roar, 19 November, 2009 - 4:36pm login or register to post comments

Great work!

Good job on this article Mathew. I enjoyed it very much and will reference to it in the future.

… DSwickley, 13 April, 2008 - 9:01pm login or register to post comments

acetone technique

There is a technique outlined by Richard Lareau here that I have found to work well.

… Brad Barnd, 25 November, 2007 - 6:02pm login or register to post comments

Beer in Room has me Living with Ants in Hotel Room

Hello,
I have been continually annoyed by Ants for 10 years now, I am a traveler that lives in room infested with Ants. The ants are so small I cannot often see them, they crawl around in my hair and on my body while I am reading a book. I decided to collect all the varieties I encounter. I live out of my backpack, how can I store small ants collected by

1. Aspirator method
2. Killed with nail polish remover

I want to store them?
I am thinking about small plastic bags, like the ones used for medicine, then I can write on them. Do ants rot?

Ok
Thanks from Andy in Thailand and soon to Africa again. Note, many rooms have Ants because the prior person in the room had BEER...

Andy of HoboTraveler.com

… Andy HoboTraveler.com, 19 December, 2006 - 1:06am login or register to post comments

Killing Methods

I have to disagree with all of the "killing methods" you listed, save freezing. According to current research the only way to **humainely** kill a bug, spider, or insect is to freeze it (some species will take quite a while to die, so anything that overwinters needs to be frozen long and cold enough to keep it from reanimating upon thawing out).

I think it's important that you emphasize the need to collect in a humaine way, if you insist on collecting in the first place. It's just simple respect for the animal; if you're going to kill it, at least do it as painlessly as possible. Could you imagine dying by drowning in alcohol? That's just horrible!

I think it's important that you give some type of reference for threatened and endangered species as well, so that people aren't contributing to the killing off of species simply for the sake of a collection.

… Enigmagirl1, 28 March, 2006 - 7:00pm login or register to post comments

Threatened and Endangered Species

I would just like to add something about threatened and endangered insect species (I may be wrong, though). As far as I am aware, most threatened and endangered insects are not found in

places that you might come across every day or would be able to collect in, such as nature preserves. Also, most threatened and endangered insects are so because of habitat destruction by humans, not by over collecting. But, there are some insects that are extinct, endangered, or threatened because excessive collecting.

Also, in his article, Matthew said that his preferred method of killing insects was freezing and I think that he has only listed the other methods because they are mainly used by professional entomologists.

… Christopher C Wirth, 29 March, 2006 - 9:42pm login or register to post comments

please document your assertion

that insects have become extinct solely or primarily because of excessive collecting.

Freezing is certainly not a practical method for collecting groups such as Hymenoptera.

… John S. Ascher, 29 July, 2007 - 11:11am login or register to post comments

I'm entirely new to this...

Why is freezing not a practical method for groups such as Hymenoptera?

(And what groups are as such?)

… jbones, 27 June, 2010 - 5:57pm login or register to post comments

Problems and benefits of freezing reconsidered:

Benefits: no poison, less destructive of DNA than ethyl acetate, etc.

Problems for use of freezing for active insects: Instead of one or a few "kill jars" which immediately immobilize the insects a large number of separate vials are required to house the active insects separately. Also, if to be frozen in the field a cooler must be brought along. If the insects are not frozen immediately after capture they may damage themselves or other insects and furthermore in that case it is not clear the the method is particularly humane.

… John S. Ascher, 24 October, 2017 - 6:04am login or register to post comments

Thanks

Thank you for the advice to improve my article. I am still working on adding a few of the things you have mentioned. I will have it done in a few days.

… Matthew Roth, 14 November, 2005 - 9:23pm login or register to post comments

Looking Good!

Matthew, your article looks very good. Keep up the good work!

… Christopher C Wirth, 16 November, 2005 - 4:05pm login or register to post comments

Making a collection

VERY nice start!

I do think that something should be said about the killing agents used. At the very least you should mention the hazards of the agents you've mentioned, particularly the cyanides! Personally, although I know that the cyanides are a time-honored preferred killing agent, their use for the beginner (or even those who are less than professional/expert) should be discouraged.

There are other agents which can be used, but are becoming increasingly difficult to obtain. When I was much younger (like, prior to 1975!) my favorite was Carbon Tetrachloride. It is virtually impossible to obtain now, but a close relative, TriChloroEthylene, can still be obtained via retail routes, if you are willing to search hard enough.

Joe.

… jhowens, 14 November, 2005 - 2:18pm login or register to post comments

Good start.

It would be nice to be able to refer students to a website with instructions on the proper way to begin and maintain an insect collection. I have already seen images of "pinned" specimens here on Bugguide that were done completely improperly. Still, I think you need to refine this article. For example, you need to include warnings about the chemicals used. Paradicholorobenzene (PDB) is a known carcinogen, for example. Also, bees and flies should not be collected in alcohol, and they can also suffer from freezing and cold storage. Wait, I should qualify that. If the goal is to eventually extract DNA, then EVERYTHING should be put in ethanol AND stored in the fridge. Tiny flies, beetles, and true bugs can be mounted with minutens, also, a method I find superior to the "will-it-stick?" pointing method:-) Including links to BioQuip and other biological supply houses might be in order as well. I'll keep checking this article as it progresses. Keep up the good work.

… Eric R. Eaton, 10 November, 2005 - 10:51am login or register to post comments

Thanks!

Do you think I should keep the Paradicholorobenzene in the article with a warning, or just omit it. I had thought about adding supply houses, but I thought I would wait and see what someone else thought. Could you recommend any supply houses for my article? I have only ever ordered from BioQuip and I don't want to provide links to companies that aren't reputable.

… Matthew Roth, 10 November, 2005 - 6:10pm login or register to post comments

Long term exposure to mothballs is unhealthy.

Mothball vapors are toxic and ultimately carcinogenic. Mothball (naphthalene) was recently placed on the list of known environmental carcinogens by US Government. I avoid mothballs like the plague. My two dozen tight fitting Cornell-type insect drawers (BioQuip) have never had a dermestid break-in for past decade. Also dermestid-proof are Schmitt-sized wooden or cardboard boxes (BioQuip) placed snugly inside heavy duty (freezer) Ziploc plastic bags (13 in X 15 5/8 in).

… Peter W. Messer, 13 April, 2008 - 11:40pm login or register to post comments

Pest control.

Dermestids (carpet beetles) are pretty immune to naphthalene anyway (I have heard of observations of the larvae EATING the stuff), and PDB (paradichlorobenzene) isn't much better and is even more toxic. Most drawers and boxes with tight-fitting lids will indeed exclude dermestids. The problem occurs when a NEW SPECIMEN, with unseen dermestid eggs on it, is introduced into a drawer, thereby starting a new infestation. So, the issue becomes how do you dry out specimens while keeping them out of reach of prowling dermestids (and phorid flies for that matter). I'd gladly welcome suggestions myself!

… Eric R. Eaton, 14 April, 2008 - 12:55pm login or register to post comments

Dermestid eggs on both live & dead specimens?

Eric, I'm not that familiar with dermestid life cyles. Please clarify if adult dermestids are known to lay eggs on living insects which we would later collect (hard to believe) ... OR did you mean egg-tainted (on surface) or larva-infested (inside) dead insect specimens collected in the field. The latter events are more likely I suspect. Hopefully we need only to worry about *dead* insects in the field as possible Trojan-horses.

… Peter W. Messer, 14 April, 2008 - 3:48pm login or register to post comments

Dermestid infestations....

Eric,

This doesn't help with your question about protection while drying, but may help with protection during storage.

You MUST be free of them to start with. This can be achieved by fumigation of the box/drawer with "No Pest"/Vapona strips (another nasty, probably carcinogenic substance), deep freezing the box for several days at very low temperatures, or any other "traditional" method.

Then, you can utilize a substance called CEDAR OIL. This procedure is currently in use by several of my online buddies for protecting their collections. Go to InsectNet.com and search for it. There have been several threads there talking about this substance. It costs something like $80.00 for a quart, but a quart gets diluted a LOT for use and will probably last a lifetime (or maybe several!). There are no known/published hazards to the use of Cedar Oil, to my knowledge. It will NOT kill the pests, but it WILL repel them, hence the need to eradicate any current infestation.

Joe.

… jhowens, 14 April, 2008 - 1:38pm login or register to post comments

Acetone?

Nice introduction! I was wondering if you have actually tried acetone as a killing agent. I am pretty sure folks should use "acetone free" nail polish remover, as ethyl acetate is a more effective agent. Good luck in your collecting endeavors!
By the way, BioQuip is a reputable company, albeit a tad expensive for some items. They are worth checking out, but many of their items may easily be made by a crafty entomologist.
-Sean McCann

triatoma.blogspot.com

… Sean McCann, 6 March, 2006 - 5:55pm login or register to post comments

Acetone

I have used acetone in my killing jar ever since my cyanide wore off and it works very well... I just pour it into the bottom and it soaks into the plaster of paris.

A few things about it... it wears off quickly since it evaporates very fast so when you open the jar multiple times, you are losing the vapors every time it is opened. Acetone also works very quickly with minimal suffering involved, the cyanide jar didn't even work that fast.

One bad part is that with certain Lepidoptera if you keep them in a sealed Acetone jar for a long time, the vapors will condense on the wings and get them "wet"... the specimen will dry with its scales intact but then it cannot be spread easily since the wing is very brittle. Other than that Acetone is a viable option

... Ray Simpson, 30 April, 2006 - 2:45pm login or register to post comments

Non-acetone nailpolish remover works too.

I always use non-acetone nail polish remover to kill my specimens. Again, it gets Lepidoptera wet if you keep them in there too long. The good thing about it is it is easy to get a hold of, and it is not as toxic and dangerous as other chemicals used. Again, you do have to "recharge" it every once and a while.

... roar, 19 November, 2009 - 4:31pm login or register to post comments

Thanks!

Okay, I didn't know that acetone-free nail polish remover was ethyl acetate. I did however buy some regular acetone at the hardware store. It seems to kill the specimen fast and not do any damage. I would think you could use either one. I have also used diethyl ether, found in gasoline engine starting fluid, but I would not recommend this because it may be dangerous. Because it kills the specimen faster than anything else I have used, it is nice for very small *Lepidoptera* where you can't afford for them to beat the scales off their wings.

I have also bought items from BioQuip, but I have made quite a bit of my own collecting equipment. Maybe I should write an article on how to make your own collecting equipment sometime.

Thanks again!

... Matthew Roth, 6 March, 2006 - 8:01pm login or register to post comments

Equipment

I would love for you to write an article on how to make your own collecting equipment. I am greatly interested in this subject, why spend the money if you can do it yourself. Thanks!

... amanda, 21 April, 2006 - 10:45am login or register to post comments

Equipment Article

Okay; I can probably add a section on to this article about collecting equipment. It may take me quite a while to get it finished, so keep checking back. Is there anything in particular you are interested in making? I have easy access to a sheet metal fabrication/machine shop, so I have always been able to easily make my own equipment. It may be harder for other people to do so.

Has this article proved useful for you?

... Matthew Roth, 21 April, 2006 - 3:52pm login or register to post comments

Matthew , Great job! You hand

Matthew , Great job! You handled the critique gracefully , refining your piece to reflect this shows character.
I only write this because the ability to do this can mean the difference between a sharp intellect expanding with no limit versus a mind that runs a high risk for stagnancy.
This site has numerous people who are not only happy to inform , teach what they know, but I find are humble as well and the result seems to add a certain quality of freedom to the learning process.
Great Job!

... Laura, 13 June, 2006 - 4:19am login or register to post comments

Thanks!

Thank you very much!

... Matthew Roth, 13 June, 2006 - 8:01am login or register to post comments

Nice article Matt

Just a couple comments. You may want to mention that moth balls serve as a repellent, while PDB is a killer, hence the safety

concerns. There are newer safer strips on the market that remind one of the old Shell no-pest strips. I do not use them in cases, but only recommend them for people with large storage cabinets. In fact many cabinets are made today that you really don't need anything in them.

As for freezing, I prefer it for micro moths. They tend to be easier to work with come spreading time. Micros killed in jars tend to tighten their muscles up and can be a real bear. I collect my micros individually in 2 inch glass vials and stuff pieces of foam in the top. As you mentioned, it keeps them from being destroyed by bigger species.

For labels, there are many schools of thought, it just depends on how you were taught. I find the most effective methods are as follows. For collection data, largest to smallest ie; state, county, local. Dates=smallest to largest, day month year. The month in roman numerals. For aquatic labels, some say two labels. I disagree. Two labels often sit against each other, and to read them you have to shake the vial. Not good for the bug. One label with the above mentioned data on opposite sides, with the paper long enough to sit against the inside of the vial and not move.

… Dennis Profant, 5 August, 2006 - 12:26pm

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